

**CLAIMS:**

1. A method in a communication system  
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sending at a first radio network entity a transmission power control signal to a mobile radio to control a power level at which the mobile radio transmits data units over the communications channel based on a target value;

detecting at the first radio network entity one or more errors in one or more data units received from the mobile radio and requesting retransmission of one or more data units;

providing information associated with the requested retransmission to a second radio network entity for generating a revised target value based on the received information in the second radio network entity.

2. The method in claim 1, wherein the provided information includes information relating to a number of data unit transmission attempts over the communications channel.

3. The method in claim 1, wherein the provided information includes information indicating one or more data units received in which one or more errors was detected or one or more data units was not received.

4. The method in claim 3, wherein the provided information includes one or both of cyclic redundancy check information and quality estimate information for data units transmitted over the communications channel.

5. The method in claim 4, wherein the communication is a diversity handover communication including two or more handover links between two or more base stations and the mobile radio, the method further comprising:

the second radio network entity performing diversity combining of one or more data units received over the two or more handover links based on one or both

of the cyclic redundancy check information and the quality estimate information.

6. The method in claim 1, further comprising:

increasing the target value if the received information reveals an increase in requested retransmissions, and

decreasing the target value if the received information reveals a decrease in requested retransmissions,

wherein an increased target value causes the first radio network entity to send one or more increase transmission power control signals to the mobile radio, and a decreased target value causes the first radio network entity to send one or more decrease transmission power control signals to the mobile radio.

7. The method in claim 1, wherein the target value is a signal-to-noise ratio or a signal-to-interference ratio.

8. The method in claim 1, wherein the detecting includes detecting signal quality information and cyclic redundancy check information for data units received over the communications channel.

9. The method in claim 1, wherein when the first radio network entity detects a missing or erroneous data unit, the first radio network entity sends a negative acknowledgement to the mobile radio and an error event indicator to the second radio network entity.

10. The method in claim 9, wherein the second radio network entity ensures that error event indicators received from plural first entities for the same data unit are only interpreted as one error event indicator.

11. The method in claim 9, wherein the second radio network entity determines an actual data unit transmission failure rate for the communication using one or more error event indicators and generates the revised target value to reduce a difference between the actual data unit transmission failure rate and a desired data unit transmission failure rate .

12. The method in claim 1, wherein when the first radio network entity sends a bit map associated with the communication indicating a number of decoding failures for one or more received data units to the second radio network entity.

13. The method in claim 12, wherein the second radio network entity combines bit map information received from plural first entities for the same data unit.

14. The method in claim 1, wherein when the first radio network entity processes one or more bit maps associated with the communication indicating a number of decoding failures for one or more received data units and sends processed information resulting from the processing to the second radio network entity, wherein the processed information is less data than the one or more bit maps.

15. The method in claim 14, wherein the processed information includes statistical information provided by the mobile radio or the first radio network entity.

16. The method in claim 1, wherein the provided information includes statistical information provided by the mobile radio.

17. The method in claim 1, wherein the first and second radio network entities are located in different radio network nodes.

18. The method in claim 1, wherein the first and second radio network entities are located in a same radio network node.

19. The method in claim 18, wherein the second radio network entity generates the revised target based on the received information and a new data indicator (NDI) communicated by the mobile radio indicating whether a data unit is a new data unit or a retransmitted data unit.

20. The method in claim 19, wherein the second radio network node is a base station, the mobile radio communication is a soft handover communication involving first and second base stations, and the NDI indicates a decoding result of the data unit taking into account a data unit decoding at the first base station and a

data unit decoding at the second base station.

21. A radio network including a first radio network entity,  
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means for performing automatic repeat request (ARQ) operations on certain data units transmitted over a radio interface from a mobile radio;

means for generating ARQ related information and forwarding said information to a second radio network entity;

means for performing a first power control associated with the transmit power level of the mobile radio based on a communication quality threshold for communications from the mobile radio over the communications channel.

22. A radio network including a second radio network entity,  
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means for performing a second power control associated with the transmit power level of the mobile radio including controlling the communication quality threshold based on the ARQ-related information from a first radio network entity.

23. The radio network according to claim 21 or 22, wherein the first entity is a base station, the second entity is a controller coupled to plural base stations, and the communications interface is a communications interface between the base station and the controller.

24. The radio network according to claim 21 or 22, wherein the first entity is radio relay node and the second entity is controller coupled to plural base stations, and wherein one of the base stations couples communications from the radio relay node to the controller.

25. The radio network according to claim 21 or 22, wherein the first entity is radio relay node, the second entity is base station, and the communications interface includes a communications interface between the relay node and the base station.

26. The radio network according to claim 21 or 22, wherein the first entity is a base station, the second entity is a controller coupled to plural base stations, and the communications interface includes a communications interface between the base station and the radio network controller, and wherein the mobile radio communicates with one of base station via a relay node.

27. A radio network for communicating with a mobile radio communication over a communications channel, comprising:

first means in a first radio network entity for sending a transmission power control signal to the mobile radio to control a power level at which the mobile radio transmits data units over the communications channel based on a target value;

second means in the first radio network entity for detecting one or more errors in one or more data units received from the mobile radio and requesting retransmission of one or more data units;

third means for providing information associated with the requested retransmission to a second radio network entity; and

fourth means in the second radio network entity for generating a revised target value based on the received information.

28. The radio network in claim 27, wherein the provided information includes information relating to a number of data unit transmission attempts over the communications channel.

29. The radio network in claim 27, wherein the provided information includes one or both of cyclic redundancy check information and quality estimate information for data units transmitted over the communications channel.

30. The radio network in claim 29, wherein the communication is a diversity handover communication including two or more handover links between two or more base stations and the mobile radio, further comprising:

means in the second radio network entity for performing diversity combining

one or more data units received over the two or more handover links based on one or both of the cyclic redundancy check information and the quality estimate information.

31. The radio network in claim 27, the second radio network entity further comprising:

means for increasing the target value if the received information reveals an increase in requested retransmissions, and

means for decreasing the target value if the received information reveals a decrease in requested retransmissions,

wherein an increased target value causes the first means to send one or more increase transmission power control signals to the mobile radio, and a decreased target value causes the first means to send one or more decrease transmission power control signals to the mobile radio.

32. The radio network in claim 27, wherein the target value is a signal to noise ratio or a signal to interference ratio.

33. The radio network in claim 27, wherein the detecting includes detecting signal quality information and cyclic redundancy check information for data units received over the communications channel.

34. The radio network in claim 27, wherein when the second means detects a missing or erroneous data unit, the first radio network entity includes means for sending a negative acknowledgement to the mobile radio and an error event indicator to the second radio network entity.

35. The radio network in claim 34, wherein the second radio network entity includes means for ensuring that error event indicators received from plural first entities for the same data unit are only interpreted as one error event indicator.

36. The radio network in claim 34, wherein the second radio network entity includes means for determining an actual data unit transmission failure rate

for the communication using one or more error event indicators and for generating the revised target value to reduce a difference between the actual data unit transmission failure rate and a desired data unit transmission failure rate .

37. The radio network in claim 27, wherein when the first radio network entity includes means for sending a bit map associated with the communication indicating a number of decoding failures for one or more received data units to the second radio network entity.

38. The radio network in claim 37, wherein the second radio network entity includes means for combining bit map information received from plural first entities for the same data unit.

39. The radio network in claim 27, wherein when the first radio network entity includes means for processing one or more bit maps associated with the communication indicating a number of decoding failures for one or more received data units and sending processed information resulting from the processing to the second radio network entity, wherein the processed information is less data than the one or more bit maps.

40. The radio network in claim 39, wherein the processed information includes statistical information provided by the mobile radio or the first radio network entity.

41. The radio network in claim 27, wherein the provided information includes statistical information provided by the mobile radio.

42. The radio network in claim 27, wherein the first and second radio network entities are located in a same radio network node.

43. The radio network in claim 42, wherein the second radio network entity includes means for generating the revised target based on the received information and on a new data indicator (NDI) communicated by the mobile radio indicating whether a data unit is a new data unit or a retransmitted data unit.

44. The radio network in claim 43, wherein the first and second radio network entities are located in a base station, the mobile radio communication is a soft handover communication involving first and second base stations, and the NDI indicates a decoding result of the data unit taking into account a data unit decoding at the first base station and a data unit decoding at the second base station.